Title

Features of VLAN switching configuration

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Before you begin to configure the VLAN settings on the switch groups please refer to the information in the following sections:

- Creating a basic PtMP configuration - this section describes the basic trunk connection between the base station and subscriber terminals.
- Remote management of the R5000 units - describes the combining process of SVI interface with VLAN-tag.
- switch command - describes the procedure of VLAN on the switch groups setting via CLI.

Let's consider the situation at which the subscriber terminal connects to the base station via a trunk mode:

- The switch group #1 on both devices is responsible for the remote management and available only on VLAN#10.
- The switch groups #1001 and #1002 are responsible for two separate areas (e.g. customers and employees) that are transmitted to the base station with tags VLAN 1001 and 1002.
- The switch group #2 on the base station receives the traffic from the subscriber terminal switch groups #1001 and 1002, while saving VLAN-tag.

The main issue of such situation is in the subscriber terminal switch groups #1001 and 1002 setting, as it is necessary to specify the rules by which the traffic would be filtered and distributed between these two groups.

How to do this please refer to the procedure below.

Configuration

1) In order to separate VLAN management from the rest virtual networks set the filter on both devices that would receive traffic from VLAN-tag 10.

```
switch group 1 vlan 10
```

2) Configure the switch group#2 on the base station

- Start the switch group#2, add "*eth0*" and "*rf5.0*" interfaces

```
switch group 2 add eth0 rf5.0
switch group 2 start
```

- Set "*Trunk*" mode

```
 switch group 2 trunk on
```

- Add the list of VLANs that should be in this switch group

```
switch list LST numrange add 2-9 11-4094
```

all VLANs except 10.

- Add the list into the switch group

```
switch group 2 vlan LST
```

3) Configure the switch groups #1001 and 1002 on the subscriber terminal

- Start the switch groups #1001, 1002, add "*eth0*" and "*rf5.0*" interfaces

```
switch group 1001 add eth0 rf5.0
switch group 1001 start
switch group 1002 add eth0 rf5.0
switch group 1002 start
```

- Set "*In-Trunk*" mode, specify the base station switch group number that will receive the traffic from this group

```
switch group 1001 in-trunk 2 on
switch group 1002 in-trunk 2 on
```

At this stage we got two identical groups. In order to equally distribute the traffic between them rules must be added. As we deal with VLAN-tags, let's review two situations:

1) Traffic egresses and ingresses to the subscriber terminal with VLAN-tag

In this case it is enough to specify the VLAN for the switch group

```
switch group 1001 vlan 1001
switch group 1002 vlan 1002
```

CAUTION

This situation intends the availability of the configured tag on the end device or an additional switch that assigns the required VLAN-tag. Otherwise, all traffic will be dropped since none of the switch groups will not receive it.

2) Traffic egresses from the subscriber terminal with VLAN-tag through the radio interface "*rf5.0*"

This situation does not require additional configuration on the end devices or the availability of the tagging switch. The required VLAN-tag would be assigned to the traffic that have been passing through the subscriber terminal from "*eth0*" interface to the radio interface "*rf5.0*". The tag should be reset in case of the traffic passing in reversed order. However, despite the convenience of this situation, the rules should be assigned to the switch groups under which they will receive the traffic. As the filtering on the switch group over VLAN number is not applicable, other methods should be used for the traffic distribution (please review the section "switch command").

The following is an example of the traffic distribution:

- Set "*strip*" mode on "*eth0*" and add VLAN-tag on "*rf5.0*"

```
switch group 1001 add eth0:0 rf5.0:1001
switch group 1002 add eth0:0 rf5.0:1002
```

In this case the egress and ingress traffic will reset VLAN-tag in "*eth0*" and assign it in "rf5.0".

- Set the filtering rule

    1) by the used interfaces

In case your device (R5000) has two different Ethernet-interfaces, each of them can be configured to a separate group

```
switch group 1001 add eth0:0 rf5.0:1001
switch group 1002 add eth1:0 rf5.0:1002
```

    2) based on a network

For this the list should be created and assigned to the required group

```
switch list IPNET match add ‘net 192.168.1.0/24’
switch group 1001 rule 1 match IPNET permit
```

3) by MAC-address of the transmitter and receiver

```
switch list MACNET mac add  00:01:02:03:04:05 00:11:12:13:14:15
switch group 1001 rule 2 src MACNET permit
switch group 1001 rule 2 dst MACNET permit
```

4) by the protocol number of the Ethernet level

```
switch list PROTONET proto add 23
switch group 1001 rule 3 proto PROTONET
```

NOTE

The system provides the flexible configuration of the filters that allows to combine them with each other to get the desired result.

NOTE

If it would satisfy your needs it is enough to configure the rules just on the one switch group. In case the packets are not in accordance with the rules of one switch group they will be sent via another, but it is necessary to consider the priority of the switch groups.